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## Clinical Section

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### Modern Treatment of Mental Disease

by George A. Little, M.D.

An Address to the Winnipeg Medical Society,  
September 18th, 1942

A few decades ago when psychiatry was a relatively new science it must be admitted that our treatment resources were rather meagre. That is not so today. We have learned a great deal about the nature of mental disease and this increased knowledge has naturally been paralleled by more rational and intelligent treatment.

The present-day approach to our problem recognizes mentation as simply one function of the organism. To understand and properly treat a disorder of mentation it is therefore necessary that we learn to think in terms of the total structure and anything which affects that structure.

A most important preliminary and necessary step in adequate treatment then is proper facilities for observation, examination and diagnosis. The mental hospitals of today are well equipped in this respect and the patient on admission has the same advantages in the way of trained and experienced personnel, modern diagnostic facilities and so on as does the patient who enters a general hospital. A brief description of the routine employed at the Brandon Mental Hospital will suffice to illustrate this point.

The patient on admission is admitted first of all to the Reception Unit. This is a separate unit of the hospital designed specifically for examination, diagnosis and treatment. It is well equipped and adequately staffed. On admission the patient is always seen by a physician who makes a preliminary examination and leaves the initial orders. If relatives are accompanying a full history is obtained. During the next several days various examinations are carried out, a complete physical checkover, accompanied by laboratory and other tests and special examinations as indicated, and finally the mental examination, which is very thorough and all-inclusive. The case is then written up and presented in a conference of all the physicians. There the case is studied thoroughly and diagnosis and treatment discussed with all members of the staff contributing.

Now a brief general outline of our treatment policy:

**1. Prevention.** All treatment must first begin with prevention. We have made a good start in this direction. At our hospital two separate Out-Patient departments are in active operation: (1) **Child Guidance Clinics.** These operate weekly in the City of Brandon and attend to the problems of childhood, and work in close co-operation with the schools. Travelling clinics to outlying points in Western, Southern and North-

ern Manitoba were in active operation prior to the War but have had to be discontinued for the duration; (2) **Adult Out-Patient Clinics.** These operate from the hospital itself and attend to psychiatric and neurological problems in the adult.

Closely linked up with prevention must be an educational programme. Mental hospitals have long had to operate against a barrier of misconception, and sometimes prejudice on the part of the lay public, and this must be overcome if the hospital is to fulfil its community function. High pressure salesmanship tactics should not be used, but that does not mean that the problem should be altogether avoided. Much can be done by means of talks and a willingness at all times to permit the public free access to the hospital for inspection and a chance to see for themselves what our problem is and how we are trying to deal with it. And above all we must give maximum service. In the long run results speak loudest of all.

**2. Hospitalization.** This is the first step in active treatment. In general medicine the first step is to put the patient to bed. In our work our bed is the hospital.

**3. Symptomatic Care.** During the early stages of disease our first problem is often to combat the acute symptoms, just as in a diabetic coma you must first control the coma before using more specific measures. Symptomatic measures are—

- (1) **Protective.** Against the dangers of physical exhaustion, suicide, injury to self and others.
- (2) **Sedative Therapy.** Not quite as simple as it sounds. Experience counts for a great deal.
- (3) **Hydrotherapy.** Packs and baths. Helps to control over-activity, combat exhaustion and has a definite sedative value.
- (4) **Occupational Therapy.** Of great value. One really has to have worked in a mental hospital to appreciate its value fully.

**4. Specific Therapy.** Measures which have a more or less specific action in a particular condition. We may include under this heading

- (1) **Antisyphilitic routine.** Malaria, etc.
- (2) **Epileptic regime.**
- (3) **Prolonged narcosis.**
- (4) **Insulin Shock Therapy.**

**(5) Convulsive Shock Therapy.****(6) General Medical and Surgical Procedures.**

Where the mental disorder is secondary to the physiological disturbance.

**5. Psychotherapy.** Should accompany or follow the foregoing. To put it quite simply, psychotherapy is a method whereby we first determine by analysis the assets and liabilities and secondly in the light of knowledge obtained do what we can to liquidate the liabilities and improve the assets. Properly employed it can often do a great deal. Psychotherapy takes the form of

Therapeutic talks.

Personality studies.

Psychoanalytical procedures.

**6. Placement.** Consists of efforts to correct pre-existing environmental irritants such as faulty home environments, marital incompatibilities, etc.

**7. Follow-up Care.** Here as in the matter of placement, we are sorely in need of better facilities. Field workers would be tremendously helpful but it means an additional expense, a minor item, which is however never easy to circumvent.

I shall now deal in somewhat more detail with the Shock Therapies.

### Insulin Shock Therapy

#### Historical

First published reports were in 1934 by Manfred Sakel, a Viennese psychiatrist. Originally employing it in the treatment of withdrawal symptoms in drug addiction, his observations made in this study led him to try hypoglycaemia in the treatment of psychoses. The treatment was introduced in North America in 1936. It was first used early in 1937 at Selkirk Mental Hospital and treatment was commenced at our hospital in October, 1937.

#### Types of Patients Treated

1. All forms of Schizophrenia, and selected cases of Manic Depressive Insanity and the psychoneuroses, especially those cases showing a schizoid coloring.
2. The disease should be of recent onset, ideally of six months or less.
3. Age and presence of organic disease, especially pulmonary or cardiac, are contraindications. With proper care, however, organic damage need not be an absolute contraindication.

#### Organization of Routine

Of prime importance. There are definite risks and complications to Insulin Shock Therapy and these can be kept within reasonable bounds only by organization of a carefully thought out routine and strict adherence to same. In our hospital a physician specially

trained in Shock Therapy is in constant attendance throughout the shock period, and the Insulin Service is adequately staffed with specially trained nursing personnel.

#### Procedure

We will not go into elaborate detail. Treatment is given daily with the exception of Sundays and statutory holidays. Insulin is given at 7:30 a.m. The initial dosage is 30-40 units increased daily, until a shock dosage is reached. This dosage varies greatly but we seldom go much higher than 400 units. During the second hour signs of shock appear and from then on until the patient is brought out of shock close supervision and constant vigilance is necessary. Shock is terminated by the administration of sugar graduated by the amount of the Insulin dosage. Routinely they are fed by nasal tube, and where quicker action is necessary by the intravenous route.

When fully awake they are kept active and a definite programme of activity and occupation during the remainder of the day is prescribed.

#### Complications

A variety of complications may occur, the most serious of which is of course sudden collapse and death. During our first year of experience with the treatment these complications were naturally higher than could be desired. With increased experience, however, we have found it possible to keep them within reasonable bounds without, we feel, losing any of the therapeutic benefits of the treatment. Chief modifications have been slight lessening of the depth of shock and more important than this shortening the duration of the shock period. Over prolongation of the shock period, we feel, is the greatest single cause of complications.

It must still be remembered that it is definitely a Shock Therapy. In our opinion when it ceases to be a Shock Therapy the therapeutic benefits also cease.

#### Results

Statistics in Schizophrenia for a variety of reasons tend to be misleading. Hence we do not propose to express them in figures. This may sound unscientific. It would be less scientific to use figures which may be inaccurate.

We can define Schizophrenia in general terms as a disease occurring in poorly constituted or poorly integrated personalities. It is frequently characterized by acute episodic outbreaks from which the patient may recover totally or partially. In many cases however, particularly the more malignant forms, it must be thought of as a chronic and progressive disease. These points must be kept in mind when we use the term "recovery." Our results may be summarized as follows:

1. The discharge rate as compared with previous records has been definitely increased.

2. The percentage classified as "recovered" and "improved" is also definitely higher.
3. The duration of the illness in discharged patients has been reduced by slightly over two months.
4. Many Schizophrenics become permanently hospitalized. There are reasonable grounds for belief that in many cases the age when permanent care becomes necessary has been set back several years. From a social and economic standpoint this is quite important.
5. Insulin Shock Therapy has greatly influenced our internal hospital administration. The incidence of excitement, destructiveness, exhaustions and the various other vexatious problems in nursing care has been sharply reduced.

### Convulsive Shock Therapy

Introduced by Von Meduna in 1935. His work was with Schizophrenia and was based on the supposition of a biological antagonism between the two diseases. The treatment was first used at the Brandon Mental Hospital in December 1937. At first Metrazol injected intravenously was the method of obtaining convulsions. Although therapeutic benefits were satisfactory there were certain technical and other disadvantages, and a search for improved methods was instituted. Carletti and Bini, two Italian workers, in 1937 succeeded in inducing the convulsions by electric stimulation. This method was not used on this continent to any extent until 1940 but by the following year was becoming widely popular. A machine was ordered for our hospital in October 1941 and on its arrival in January 1942 was promptly put into operation.

### Apparatus

We use a machine manufactured by the Rahm Instrument Company of New York. It is small and compact, weighs only sixteen pounds and can easily be carried from ward to ward by hand. It operates on a 110-volt A.C. current. Voltage and time exposure can be accurately graded. Treatment begins usually with a time exposure of .10 seconds and a voltage of 80-90 volts. The dosage is raised gradually as required.

The current is applied through electrodes applied to the temples thus passing through and stimulating the motor cortex. Provision is made on the machine for measuring head resistance and intensity of the current on application.

### Procedure

Technique of administration is essentially simple. Treatment is given three times weekly on alternate days between 9 and 10 a.m. Patients have no breakfast on the morning of treatment, and their temples are shaved. Other than this there is no special preparation.

Treatment is given on a hard mattress with fracture board underneath. A sandbag is placed under the small of the back and moderate backward pressure is exerted on the shoulders and pelvis. These measures promote hyperextension and reduce the incidence of traumatic complications.

With the patient in position, the temples are coated with contact jelly and the electrodes previously covered with a light cotton pad soaked in saline are applied. With the apparatus in the Test position head resistance is measured and the apparatus set for the required time and voltage. The switch is then thrown from the Test to Treat position and the current applied. Loss of consciousness is immediate though the convulsion may be delayed for varying periods up to a full minute. The patient, however, has complete amnesia for the period of actual shock so that the treatment is not at all unpleasant.

The actual convulsion is very similar to the typical epileptiform seizure.

### Types of Patients Treated

Originally used with Schizophrenics but it was soon found that best results were obtained with depressions. In the light of experience we have found it applicable in the following types:

1. **Depressions.** Probably equally good results are obtained in any age group but because of the relatively poorer prognosis and longer duration in the involutional group results are more impressive there.
2. **Manic States.** Results are not so good. There is a considerable tendency to remission.
3. **Schizophrenia.** We do not feel that results are compatible with those obtained with Insulin Shock Therapy. There is a considerable tendency to remission. We use it therefore as an adjunct to Insulin Shock Therapy, particularly in cases showing much stupor, apathy or a depressive coloring.
4. **Psychoneuroses** with depressive coloring. In such cases it will relieve the depression but probably has little or no effect on the underlying neurosis.

### Complications

Almost entirely traumatic in character. They include dislocations, fractures of long bones and compression fractures of the mid-thoracic vertebrae. The last named has created the most controversy but actually we have never found it to be a serious complication. The incidence of these complications has been greatly reduced by improved methods of technique.

### Comparison of Electrical Shock with Metrazol

Experiences to date would indicate that Electric Shock has all the therapeutic benefits but is free from many of its disadvantages.



### Advantages

1. **Elimination of Technical Difficulties.** On the whole it is somewhat simpler to administer. The most troublesome problem with Metrazol was the tendency for the veins to become sclerosed.
2. **Cost.** Our Metrazol costs were averaging nearly \$300 per year. The initial cost of our Rahm apparatus was \$250 and operating costs are virtually nil.
3. **Fear Reaction.** This was a very real disadvantage with Metrazol and often interfered with the treatment. It is a minimal problem with Electric Shock.
4. **Post Convulsive Reaction.** Chiefly nausea, gastric distress and mental confusion. These are all present in much lesser degree with Electric Shock.
5. **Traumatic Complications.** It is generally conceded that the incidence with Electric Shock is lower.
6. **Cardio Vascular Strain.** Electro-cardiograph examinations show most marked changes with Insulin Shock, next Metrazol, and least of all with Electric Shock.
7. **Controllability of Shock.** With Metrazol subconvulsive reactions produce a marked fear reaction and may have a very detrimental effect on the patient. In Electric Shock such is not the case. Thus subconvulsive dosages can be used and many patients treated in this manner who could not be treated with Metrazol.
8. **Out-Patient Work.** As is readily seen from the above, Electric Shock is better suited to Out-Patient needs.

### Results

As stated, they are best in the pure depressive states. In other conditions the treatment is of more doubtful value.

With reference to depressions, it must be admitted that we cannot be certain as to the exact role Convulsive Shock plays in recovery. Many depressions recover spontaneously. We

believe that in some cases a cure is effected that would not be obtained by other methods. We do feel quite definitely that recovery can be appreciably hastened. Particularly in Involutional depressions the duration of the illness may be shortened by several months, in rare cases even years.

### Frontal Lobotomy

I wish to make merely a brief mention of this surgical procedure which is beginning to arouse interest in neuropsychiatric circles, and which in time may prove a useful procedure.

The operation consists of a cutting of association tracts in the pre-frontal areas of the brain, usually in both lobes. The cutting is quite extensive in area and on the surface appears as quite a drastic procedure. Nevertheless some rather remarkable results are claimed.

We are not any too familiar with the functions of these brain areas but results of this operation would seem to indicate that they have something to do with the faculties of inhibition, foresight and consciousness of self. At least the most noticeable changes following operation occur in these fields. Apparently there is such a thing as inhibition, foresight and self-consciousness being carried to extremes not compatible with good mental health. Thus damage to these faculties may actually do good.

The procedure was first used by a Portuguese physician in the treatment of chronic depressive states. Recently the operation has been performed on chronic Schizophrenic patients, particularly cases showing marked deterioration and violent and destructive tendencies. Many cases had been in hospital for periods up to fifteen years. Rather startling improvements have occurred even to the point of return to the home environment, and probably it is its application in this type of case that is responsible for the increased interest in the method.

I mention it chiefly as a matter of interest but also because at our hospital we are giving considerable thought to the advisability of trying out an experimental case or two. The method seems worthy of investigation.

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## Editorials and Association Notes

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### New Feature

It is proposed to run a column on Therapeutics for the next few months as a new feature of the Manitoba Medical Review. To begin with, emended extracts from the recently issued Internes' Handbook of the Winnipeg General Hospital will be offered. The first extracts appear in this issue.

Comments from readers are invited, and suggestions for future topics in this column would be appreciated.

### Obituaries

#### Dr. Sara Meltzer

Dr. Sara Meltzer, Associate Pathologist of Winnipeg General Hospital, died October 11 in the hospital where she had worked for eighteen years. Born in Winnipeg in 1900 she studied in St. John's Technical School and Manitoba Medical College from which she graduated in 1924. She then joined the pathological department of the Winnipeg General Hospital where she continued without interruption save for post-graduate work under Dr. Masson, University of Montreal, and Dr. James Ewing, Cornell Medical School, New York. Under Professor William Boyd and Professor Daniel Nicholson her reputation as a tissue pathologist and teacher steadily rose. In 1937 she was appointed lecturer in Pathology in the Faculty of Medicine, University of Manitoba, and Associate Pathologist, Winnipeg General Hospital. She also lectured for many years to the student nurses of the hospital. She is survived by her father, three sisters and four brothers, three of whom are in the Canadian Forces, and one of them, Capt. Herbert Meltzer, R.C.A.M.C., formerly surgeon at Manitoba Sanatorium, Ninette, is now serving overseas.

By herself and with other members of the staff Dr. Meltzer published papers on rheumatic fever, thyroid disease, relation of neurological lesions to gastric ulcer and findings in experimental tar cancer.

Dr. Sara was beloved for her qualities of mind and heart. Her untimely death is a real loss to the hospital and the college.

#### Dr. C. William Green

Dr. Charles William Green died at Winnipeg on September 23. Born in the Isle of Wight, he was educated at Southampton; then, coming to Canada, he entered Manitoba Medical College, graduating in 1910. After post-graduate work in London, he returned to Canada in 1912, but on the outbreak of war he enlisted in the R.C.A.M.C. On his return from overseas he resided in Winnipeg. He was a member of the Winnipeg Cricket Club and of the Public School Boys' Association.

#### Capt. Francis W. Hayter at Dieppe

Capt. Hayter was ashore with the South Saskatchewan Regiment for the entire period of the action at Dieppe and demonstrated the highest order of personal courage and devotion to duty under very trying conditions. He established three R.A.P.s (regimental aid posts) and constantly moved through heavy mortar and machine-gun fire from one to another.

On the beach while evacuating the wounded he was subjected to intense artillery fire and dive-bombing but persisted in his task, and personally saw that all who could be taken were embarked before he himself would go aboard.

Throughout the entire return journey and afterwards at a shore hospital, Capt. Hayter carried on for more than 24 hours to ensure the comfort and safety of the men under his care.

(Capt. Hayter, in civilian life a medical doctor, was born June 28, 1907. He was educated at public schools in Alameda, Sask., and Winnipeg; Daniel McIntyre Collegiate, Winnipeg; the University of Manitoba and the Manitoba Medical College, from which he graduated in 1933.

(Capt. Hayter's military career began when he was commissioned in the Royal Canadian Army Medical School at Regina, May 10, 1940. After going overseas, Captain Hayter was attached to the 9th Field Ambulance and later to the 2nd Anti-Tank Regiment and finally to the South Saskatchewan Regiment.)

#### American College of Surgeons Cancels Clinical Congress

The annual Clinical Congress of the American College of Surgeons which was scheduled to be held in Cleveland November 17-20, 1942, was cancelled by the Board of Regents of the College at a meeting held on October 14. The Regents were influenced by the present conditions surrounding the general war programme which have led to a greater burden on the members of the surgical profession in their local communities.

## Therapeutic Section

### Care of a Comatose Patient

The chief causes of death in the comatose are pulmonary oedema and pulmonary infection.

**Urine:** If bladder enlarges so that it can be felt or percussed put in retention catheter and empty bladder four-hourly. Sulfathiazol administration will tend to prevent urinary infection. Try to maintain urinary output at 1000 cc's. daily or more.

**Fluids:** Nourishing fluids and medication may be given t.i.d. after shoving a large Ewald stomach tube down the throat for at least 18 inches beyond the lips (to make sure it is not in the trachea). This procedure (called "gavage") is usually simple and speedy and about one-third as much trouble as an intravenous. Clamp Ewald tube before withdrawal to avoid spilling contents down larynx.

If intravenous fluids are given remember that each liter of normal saline contains 9 grams of salt, which is an adequate sodium intake for 24 hours if the patient is not dehydrated or vomiting. Too much sodium will give oedema of the body or lungs. Extra fluid may safely be given as 5% glucose in distilled water.

**Air:** Any deeply unconscious patient needs an airway, or preferably an Endotracheal tube. This tube not only protects against suffocation but it prevents inhalation of vomitus. A catheter may be inserted into the tube when necessary for aspiration of mucus.

100% O<sub>2</sub> for 12 hours on and 4 hours off, via B.L.B. mask, helps to prevent generalized, and in particular cerebral, anoxia.

Occasional CO<sub>2</sub> inhalation helps prevent atelectasis and improves muscular tone.

**Medication:** If gavage is used, 2 powdered sulfathiazol tablets may be given with the fluids via Ewald tube t.i.d. If the intravenous method is preferred 1 gram sodium sulfathiazol may be given intravenously t.i.d. The purpose of this drug is to prevent pneumonia and urinary infection.

**Shock:** Watch for haemoglobin concentration, pulse rise, and blood pressure fall, as signs of shock, and treat accordingly.

**H. W. B. Burns:** Remember that an unconscious patient is easily burned and that hospitals are often sued on this account.

### Shock (Capillary Atony and Anoxia)

**Diagnosis:** A rising haemoglobin% (if there is no haemorrhage) is one of the earliest signs. Pallor, perspiration; rapid, thready pulse; semi-consciousness or unconsciousness; low blood pressure. Hourly observation of pulse and blood pressure.

### Treatment

- a. Elevate extremities or place patient in Trendelenburg position.
- b. Keep patient warm. Hot water bottles and blankets.
- c. In giving fluids, be careful not to increase haemorrhage. If blood is not available immediately, use serum, plasma, 6% gum acacia, or 500 to 1000 cc. of 10% dextrose solution in physiological saline, intravenously, at the rate of 15 cc. per minute.
- d. Give respiratory stimulants—caffeine with sodium benzoate, gr. 7½ subcutaneously.
- e. If no danger of increasing haemorrhage, give gr. ¾ by mouth or intravenously.
- f. 100% oxygen by B. L. B. mask.
- g. Cortin 20 cc. intramuscularly, if patient's condition is critical.

**Medical Causes of Shock:** Acute yellow atrophy, Addison's crisis, diabetic coma, anaphylaxis, Hg Cl<sub>2</sub> poisoning, food poisoning, diphtheria.

### Haemorrhage

If the cause of haemorrhage is not obvious and a transfusion is about to be given, it is most important to do a full blood count before the blood picture is changed by the transfusion.

#### Gastric Haemorrhage

- a. Absolute bed rest.
- b. No food or drink by mouth till nausea ends. The Meulengracht diet plus Ferrous Sulphate gr. 5 t.i.d. The mortality rate under the old starvation treatment was very much higher than it is under Meulengrachtic method of early feeding.
- c. Proctoclysis if indicated.
- d. Blood grouping in case transfusion necessary. Transfusion if blood pressure falls under 90 or haemoglobin under 40.
- e. Morphine if patient is restless. If morphine is not tolerated (causes vomiting) give soluble barbitol, gr. 3 to 5, intramuscularly. Morphine should be avoided if cirrhosis is suspected.

#### Pulmonary Haemorrhage

- a. Absolute bed rest in semi-sitting position.
- b. Sodium amylal 3 grains.
- c. Codeine gr. ½ by hypo if cough is distressing.

#### Nasal Haemorrhage

Most nasal haemorrhages are from Hesselbach's area. Haemorrhage may be controlled by inserting a large pledget of absorbent cotton saturated in cocaine 10% with Adrenalin inserted into the nostril and pressure applied from outside with finger-tip by the patient.

Next day the bleeding point may be localized, cocaineized and cauterized with silver nitrate fused on an applicator.



## Catheterization of Males

Any patient unable to void is given one tablet of Prostigmin by mouth at once. If still unable to void the dose is repeated in one hour. Catheterization is only resorted to at the end of the second hour or when discomfort becomes severe. In post-operative patients Prostigmin is found to obviate about 80% of catheterizations.

1. Wash the penis with green soap and water, then wrap the glans in a sponge soaked in weak bichloride solution for 3 minutes.
2. Squirt a little sterile K Y jelly on the meatus.
3. 16 F catheter is held by sterile forceps near the point. The other end is held between the 4th and 5th fingers of the forceps hand. Do not allow the part of the catheter which is to enter the penis to be touched by any object except the meatus and the forceps. The left hand holds the penis. The catheter is pushed in by the forceps, taking new grips with the forceps as the procedure continues.
4. If this method fails, don gloves and manipulate the catheter. If unsuccessful squirt 5 cc. sterile K Y jelly into urethra with a syringe and try again. If still unsuccessful give an opium suppository and put patient in a sitz bath for 30 minutes. Then try again with an ordinary catheter and a filiform catheter. Never use a metal one. If failure, call a specialist or do a suprapubic aspiration.
5. All patients over 50 and any others in whom urinary infection is feared (e.g., paralytics) are to have one tablet of Sulfathiazol b.i.d. for 3 days after catheterization, starting immediately after the procedure.

## Oxygen Therapy

**Indications for oxygen therapy.** This type of therapy may be indicated in:

Pneumonia	Carbon monoxide poisoning
Acute massive atelectasis	Postoperatively
Pulmonary embolism	Pulmonary oedema
Severe hay fever	Post-operative distention
Status asthmaticus	Subcutaneous emphysema
Acute coronary occlusion	Air embolism
Cardiac disease with decompensation	Encephalography headache
	Gas gangrene

Cyanosis, dyspnoea, and a rapid pulse are the most accurate indirect guides as to the advisability of oxygen therapy. Further, a fall in pulse rate is the best clinical evidence that instituted oxygen therapy is effective.

In the absence of cardiac decompensation, the degree of cyanosis in cases of pneumonia is usually proportionate to the degree of oxygen unsaturation of the arterial blood. Usually the cyanosis in pneumonia is lessened or abolished by oxygen administration. Also there is usually a parallel decrease in the amount of dyspnoea. In pneumonia it is wise to continue oxygen administration until there is no further clinical evidence to suggest oxygen want.

In **massive atelectasis** and pulmonary embolism the presence of dyspnoea and cyanosis are the chief indications for oxygen therapy. In both of these conditions the beneficial effects of oxygen administration may be very striking. In pulmonary embolism give 1/50 grain Atropine and Papaverine gr. 1/2 intravenously immediately.

In **acute coronary occlusion** there may be a general tissue anoxemia for several hours or days. Further, it is suspected by many that the occluding process per se may reduce the oxygen supply of certain portions of the myocardium to extremely dangerous levels. Here again it is wise to continue oxygen therapy until cyanosis and precordial pain have disappeared.

In **carbon monoxide poisoning** there is evidence that increasing the partial pressure of oxygen in the inspired air tends to hasten the breakdown of the relatively stable compound formed by carbon monoxide and haemoglobin.

### CO<sub>2</sub> Therapy in Atelectasis

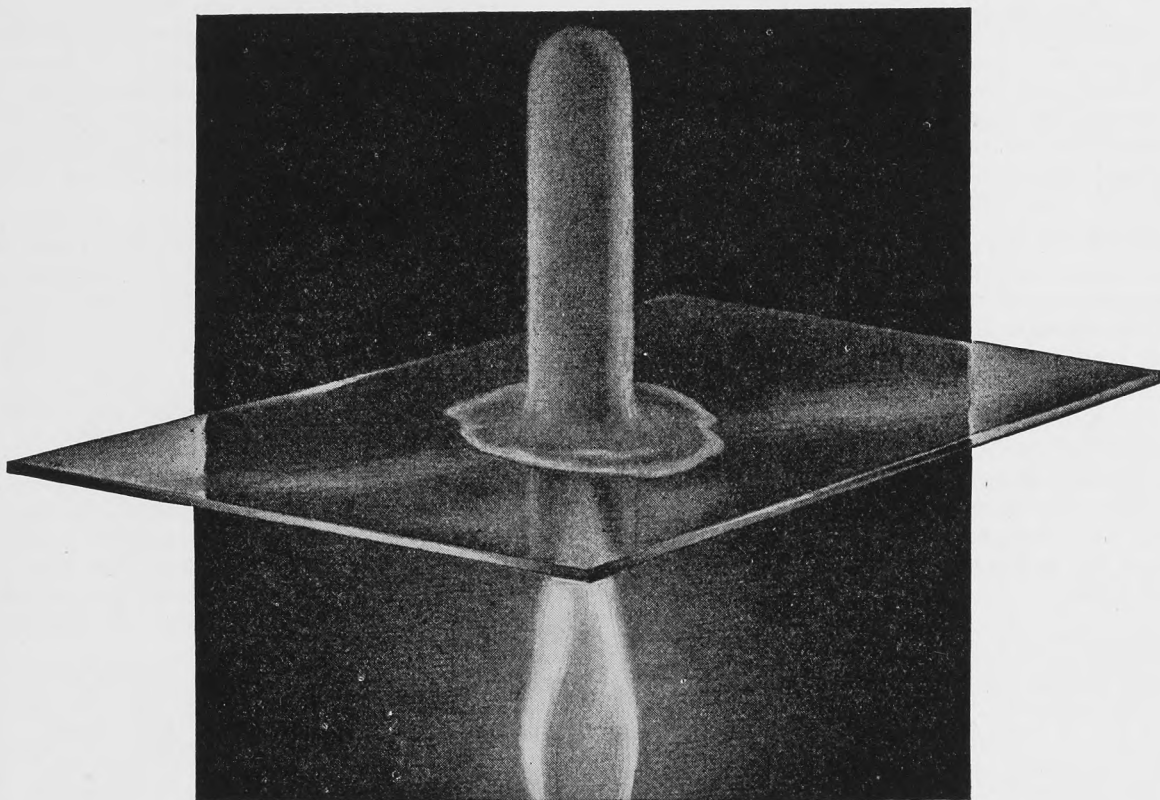
In patients with incipient or established atelectasis CO<sub>2</sub> inhalation should be tried to make the patient breathe deeply and cough. Pure CO<sub>2</sub> is released under the patient's nose through a hose (previously sterilized in biniodide) until the breathing is very deep. He is encouraged to cough. This may be repeated in 1/2 hour. If this fails in a patient with atelectasis, a catheter should be passed into the trachea by the direct laryngoscope, to induce cough. If the physical signs and symptoms are not relieved, an emergency bronchoscopic aspiration is indicated. Sulfathiazol will help to prevent pneumonia.

### Administration of Oxygen Therapy

The **nasal catheter** is based on the principle that oxygen delivered through the nose into the oropharynx at the level of the uvula determines a definite alveolar oxygen tension the extent of which depends primarily upon the rate of flow. Approximately 8 liters per minute should be allowed. This gives the inspired air an oxygen concentration of about 60%.

The **B.L.B. (Boothby) mask** allows delivery of almost 100% oxygen to the lungs. Expired air is eliminated from the system through a valve arrangement. The flow of oxygen from the pressure tank is most effective when maintained at from 6 to 10 liters per minute.

**Oxygen treatment of abdominal distention, subcutaneous emphysema, air embolism, encephalography headache.** This type of treatment is based upon the observations that most of the distending air in the bowel is swallowed nitrogen and that reduction of the partial pressure of nitrogen in the blood stream causes a diffusion of nitrogen out of the intestinal lumen into the blood. By giving pure oxygen and eliminating the nitrogen as it is expired (B.L.B. mask) the nitrogen in the bowel is gradually removed.



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## War Medicine

National Defence Headquarters, Ottawa, has recently announced the appointment of Brigadier G. B. Chisholm as Director General of Medical Services, Royal Canadian Army Medical Corps; also the appointment of Brigadier J. C. Meakins as Deputy Director General of Medical Services in charge of Professional Activities, Royal Canadian Army Medical Corps, and Colonel G. A. Winfield as Deputy Director General of Medical Services in charge of Administration. Brigadier R. M. Gorssline, who was formerly Director General of Medical Services, is appointed Inspector of Hospitals.

Brigadiers Chisholm and Meakins served with distinction in the last Great War, the former winning the M.C. and Bar, while Brigadier Meakins was mentioned in despatches twice for outstanding professional work. Colonel Winfield has been overseas two years, and was in charge of hospitalization in Canadian Military Headquarters, London, previous to his return to take up his new appointment.



The purpose behind the division of duties of the Deputy Director General of Medical Services is to permit greater attention being given to the professional aspects of the Royal Canadian Army Medical Corps. It is proposed under the Deputy Director General of Medical Services (Professional) to appoint additional consulting physicians, surgeons and psychiatrists to assist the professional personnel in the various military districts. These consultants will have their headquarters in Ottawa, but will keep in close personal touch with the districts under their supervision.



Special Reception Centres are now being set up where Boards will examine all applicants for enlistment. These Boards will consist of Medical Officers possessing outstanding professional qualifications for this type of work. Each Board will consist of a physician, a chest specialist, a surgeon, an orthopedic surgeon, a psychiatrist and an eye, ear, nose and throat specialist, together with a radiologist and Personnel Selection representative. The purpose of this move is to follow more rigidly the physical standards, so as to prevent men getting into the Services who either break down soon after enlistment and become "E" Category men, or those who upon examination show that they are "E" Category at the time of enlistment. The work of these Boards is most important and necessitates the most careful physical and mental examinations, in order that only those who are in acceptable categories for military duties are inducted into the Army.

Female physicians are now being accepted into the Royal Canadian Army Medical Corps, both as specialists and general practitioners. Female medical students may now be permitted to enlist in the Royal Canadian Army Medical Corps under the Government's accelerated plan of medical education. This plan provides enlistment for students for a period not to exceed twenty-four months, such period to include internship either before or after graduation, in accordance with the curriculum of the particular University concerned. The total period in all cases will include internship, and the twenty-four months is therefore divisible into three periods, which in some universities takes third, fourth and fifth year, while in others it takes fourth and fifth year and eight months' internship.

If male medical students are fit they are taken on as Privates, given the pay of Privates—\$1.30 a day plus \$1.00 subsistence—and granted leave of absence.

Female medical students are taken on as members of the Canadian Women's Army Corps. During such time as the medical school is not in session students shall be liable to do duty with their unit, or be detailed for such military or professional duty as may be directed by the District Medical Officer.

## Book Review

**War Medicine, a Symposium**, edited by Winfield Scott Pugh (Philosophical Library, 15E. 40th St., New York City), August, 1942. \$7.50.

This well illustrated book of 565 pages contains 57 articles by well known English and American writers including Max Page, C. P. Wakeley, Foster Kennedy, Grey Turner, J. G. Scadding, G. Gordon-Taylor, R. C. Brock, Winnett Orr, Bishop Harman and Alvin Barach.

The articles, which were originally published in such journals as the British Medical Journal, The Military Surgeon, and The American Journal of Surgery, are here grouped in the main divisions of Surgery, Aviation and Naval Medicine, and General Medicine, and each division is sub-grouped as far as possible.

The method of compiling this book naturally leads to some overlapping and to some diversity of opinion, but taken as a whole it is an excellent symposium of war medicine and will be invaluable to medical officers in the services.

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## Winnipeg Medical Society

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## MEETINGS

Third Friday, each month

**Next Meeting****November 18th**

## MEETINGS

Start exactly at 8:15 p.m.

### NOTICE BOARD

The October meeting was devoted to polio. First Dr. Bruce Chown spoke on the changed conception of the pathology. Then Dr. Deacon talked about treatment, the conception of which also has changed. A year ago, you may remember, we had a symposium into which treatment entered very little. That was B.S.K. (before Sister Kenny). Then her name evoked a smile or a laugh or a joke; at this meeting she dominated the scene. Her ideas of spasm, alienation and substitution, were explained and illustrated by Dr. Deacon and Mrs. Ross and glowing reports were given of the results her treatment has achieved.

In leading off the discussion, Dr. J. D. Adamson pointed to the palate which could neither be fomented nor splinted, yet always recovered from its paralysis. From this he inferred that if left to themselves patients would probably do quite as well as if they were treated. I expected some surgeon to jump up and say "In other words you would treat them medically." This would almost certainly have caused a great laugh as surgeons like to regard "medical treatment" and "doing nothing" as synonyms. However, either because they were too considerate or not bright enough, no surgeon made the sally.

The discussion was continued by Dr. Angus Murray, who showed a great knowledge of the Scriptures and expressed a great ignorance of Nurse Kenny's ideas. This might be expected for while God's Book is easily comprehensible to man, Nurse Kenny's book is incomprehensible even to God. Unlike St. Paul, Dr. Murray had not seen the "great light" which seems to have turned sceptics into converts elsewhere; or rather, out of a wide knowledge and great experience, looked upon it as an "ignis fatuus." Dr. Gardner also had not yielded to Nurse Kenny's persuasion and, while he did not altogether condemn, he did not greatly praise. Indeed, the orthopedists seemed to regard it as the rejuvenation of an old method rather than something new, and were inclined to let the verdict of time precede their own.

Duke in "As You Like It" found "tongues in trees, birds in the running brooks, sermons in stones and good in everything," but he would have been surprised to learn the extent to which modern science has gone in finding "good in everything." To be sure we have not yet equal-

led the Egyptians who found great virtue in fly specks and a sovereign panacea in the excrement of scribes, but we are getting there! The latest refuse to give up a valuable therapeutic secret is spoiled sweet clover. There is in spoiled hay a substance that causes a haemorrhagic disease in the cattle that eat it. This substance, briefly called coumarin, prolongs the coagulation and prothrombin times and thus retards or prevents intra-vascular clotting. In this action it resembles heparin, but unlike heparin it is inexpensive and can be given by mouth. Dr. A. Hollenberg will tell us about it at the November meeting in his paper on "Dihydroxy coumarin and its use in Post-operative Thrombosis."

Having been instructed how to escape from the Charybdis of intra-vascular clotting we then proceed to learn how to deal with the equally dangerous Scylla of uterine bleeding. The ancient therapists had the choice, amongst others, of greater plantain, lesser periwinkle, orange peel and lentils. At that, the resulting brew would probably taste no worse than the late Mrs. Pinkham's well-known nostrum, and would possibly be quite as effective. And I can't imagine Galen or Aretaeus losing any sleep because he had prescribed the lesser periwinkle instead of the greater plantain or vice versa. The modern therapists with their more numerous and more potent remedies have greater difficulty in deciding what to use. In menopausal bleeding the quickest and most final way to settle the matter would seem to be the removal of the bleeding organ. But a good surgeon is one who knows when not to operate and when that is his decision then the radiologist has his innings. Dr. Wheeler has been making a study of the subject and will give his results in a paper entitled "Menopausal Bleeding and X-Ray Therapy."

These two papers will furnish a rich and meaty educational banquet. Now it is proper that the last course on such a menu should be something light and palatable but not necessarily nutritious. Accordingly my own contribution "The Knights of Malta" will be entertaining (I hope) rather than instructive, although it may be that also (I hope). Incidentally, this meeting is a combined meeting of the Society and the Medical History Section. As members of the Society you are eligible to become members of the Section, and you are invited so to become.



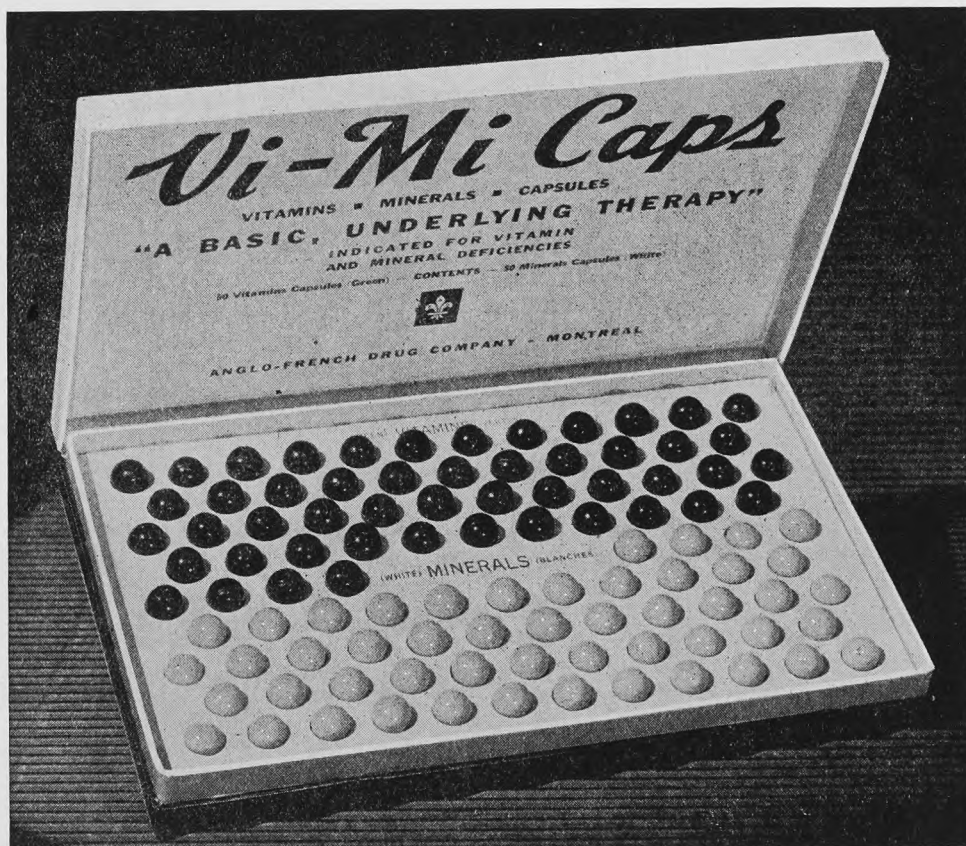
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Department of Health and Public Welfare

Comparisons Communicable Diseases

DISEASES	1942		1941		TOTALS	
	Sept. 10-October 7	August 13-September 9	Sept. 10-October 7	August 13-September 9	January 1-October 7, 1942	January 1-October 7, 1941
Anterior Poliomyelitis .....	8	6	88	463	44	970
Chickenpox .....	47	24	73	26	1578	1434
Diphtheria .....	30	8	14	7	172	116
Diphtheria Carriers .....	6	—	1	—	15	9
Dysentery — Bacillary .....	—	1	1	1	6	2
Erysipelas .....	3	8	2	3	76	55
Encephalitis .....	4	8	24	411	33	502
Influenza .....	1	1	8	15	177	222
Measles .....	18	26	47	12	4328	3140
Meningococcal Meningitis .....	—	2	3	2	20	42
Mumps .....	42	38	56	35	2730	903
Ophthalmia Neonatorum .....	—	—	—	—	1	2
Pneumonia — Lobar .....	2	—	3	11	83	86
Puerperal Fever .....	—	—	1	1	2	7
Scarlet Fever .....	29	21	54	13	1113	323
Smallpox .....	—	—	—	—	—	—
Tetanus .....	—	1	—	—	2	1
Trachoma .....	—	1	—	—	5	6
Tuberculosis .....	45	60	13	79	461	398
Typhoid Fever .....	9	8	5	2	25	21
Para - Typhoid .....	—	—	1	—	2	1
Undulant Fever .....	2	—	—	1	9	3
Whooping Cough .....	66	44	7	19	312	221
Septic Sore Throat .....	1	1	2	1	56	11
German Measles .....	—	—	3	1	259	1412
Gonorrhoea .....	117	119	80	91	927	841
Syphilis .....	50	79	34	37	524	348

This month we are showing our reported cases of communicable diseases in a different manner to the usual listing by municipalities. We would appreciate hearing any comment you may wish to make. This page is printed for your information and we wish it to be of real value.

The totals for the year to date are almost all increased with the exceptions of poliomyelitis, encephalitis, meningitis and puerperal fever, scarlet fever and diphtheria are two of the most noticeable. Scarlet has been widespread over the whole continent so we need not feel too badly about it. The City of Winnipeg contributed 14 of the 30 cases of diphtheria for this four-week period, St. Boniface 2, Dufferin 2 and there were 7 from unorganized territory.

TYPHOID FEVER showed a small outbreak in Portage la Prairie and North Norfolk. All these cases appear to trace to one which was ambulant for some time before going to hospital.

The other communicable diseases show general distribution throughout the province and no particular epidemics.

DEATHS FROM COMMUNICABLE DISEASES

August, 1942

URBAN—Cancer 39, Tuberculosis 6, Pneumonia Lobar 3, Pneumonia (other forms) 4, Syphilis 3, Lethargic Encephalitis 2, Diphtheria 1, Typhoid Fever 1, Whooping Cough 1, Meningococcal Meningitis 1, Hodgkins Disease 1. Other deaths under one year 17. Other deaths over one year 124. Stillbirths 19. Total 222.

RURAL—Cancer 23, Tuberculosis 7, Pneumonia Lobar 1, Pneumonia (other forms) 5, Lethargic Encephalitis 2, Septic Sore Throat 2. Other deaths under 1 year 18. Other deaths over 1 year 129. Stillbirths 11. Total 198.

INDIANS—Tuberculosis 4, Pneumonia (other forms) 2. Other deaths under one year 4. Other deaths over one year 5. Total 15.

DIPHThERIA: Thirty cases—we stick out like a sore thumb! Has every child been toxoided recently? Probably not!

TYPHOID FEVER: Not so satisfactory and our year looked fairly good until this little outburst ran the total up.

SMALLPOX: None reported, but don't neglect vaccination and re-vaccination.

Other diseases, our figures compare reasonably well. Ontario and Minnesota have some poliomyelitis but in comparison with their populations it is not high. We have been fortunate this year as regards polio and encephalitis but of the cases of encephalitis occurring, one-third have died.

DISEASE	Manitoba Sept. 10-Oct. 7	Ontario Sept. 6-Oct. 3	Saskatchewan Sept. 6-Oct. 3	Minnesota Sept. 6-Oct. 3	North Dakota Sept. 6-Oct. 3
Anterior Poliomyelitis .....	8	22	2	18	4
Meningococcal Meningitis .....	—	14	4	1	—
Chickenpox .....	47	209	69	39	—
Diphtheria .....	30	5	7	4	—
Erysipelas .....	3	7	2	—	—
Influenza .....	1	11	—	2	7
Leth. Encephalitis .....	4	—	2	1	3
Measles .....	18	51	56	21	13
German Measles .....	—	21	9	—	—
Mumps .....	42	443	68	—	4
Scarlet Fever .....	29	185	76	83	15
Septic Sore Throat .....	1	2	1	—	—
Bacillary Dysentery .....	—	—	1	3	—
Amoebic Dysentery .....	—	—	—	5	—
Trachoma .....	—	—	—	—	4
Tuberculosis .....	45	181	35	55	21
Typhoid Fever .....	9	6	2	1	1
Typh. Para-Typhoid .....	—	2	—	—	—
Undulant Fever .....	2	4	3	—	2
Whooping Cough .....	66	326	32	186	47
Tetanus .....	—	2	—	—	2
Diphtheria Carriers .....	6	—	—	—	—
Syphilis .....	50	475	—	—	35
Gonorrhoea .....	117	579	—	—	19



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